

Serial Number 09/852,866
Art Unit 1742
Docket 2950RCE

Examiner previously asserted on page 7 of the January 3, 2003, non-final Office Action, that Wienert discloses a process for making hard composites from coal and iron ores comprising mixing particles with such an amount of water that a later compression squeezes out a small amount of the added water, aggregating the mixture and compressing the aggregates under a pressure range of 800 to 1500 kg per square cm, whereby a small amount of added water is squeezed out and a ribbon is formed which is divided into compacted bodies. Wienert discloses the addition of limestone, but not the addition of ground paper. Grandin discloses cold briquetting iron oxide and carbon carriers together with a binder which may be lime or ground paper. The Examiner has stated that it would have been obvious to one of ordinary skill to include a binder such as ground paper since ground paper is equivalent to limestone as taught by Grandin et al.

Applicant's compositional components cited in the method claim 1 (as amended to read "*consisting of*" instead of "comprising"), therein include (in the combining step) iron oxide, a reductant, cellulose fiber, and 0% to 5% added water by weight of the mixture. Other components are excluded through the limitation of "*consisting of*." Addressing Grandin et al., specifically col. 4, lines 49-59, as the Examiner apply observed, Grandin et al. teaches a binder comprised of hydrated lime and/or sulfite lye and/or molasses and/or ground paper, wherein the binders are equivalent. In the instant invention, Applicant has compared cellulose fiber and molasses /lime, and found cellulose binder to be superior for the process as described in claim 1. Support for the claim is found in the specification on page 12, line 17 to page 13, line 21. Figure 2 further illustrates the advantage of utilizing cellulose fiber, especially when processed for 6-10 minutes, in contrast to a binder comprised of molasses and lime. Grandin has taught

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away from the advantages of a pure cellulose fiber binder. Also, Grandin does not teach that the briquette can be used in a rotary hearth furnace, but instead anticipates that the furnace is a converter into which are loaded not only briquettes, but also pig iron, in close proximity to the briquettes. Into the converter is blown oxygen (col. 3, lines 56 - 66) which generates heat (via combustion of the coke), and the proximity of the briquettes serves as a source of heat and reducing gases. The residue briquettes (col. 4, lines 7-9) can also be used with pig iron in an electric arc furnace in a similar manner. Applicant's method, as claimed in amended claim 1, utilizes cellulose fiber (no lime or molasses), and at temperatures and times sufficient to metallize the iron contained in the green briquettes on a rotary hearth furnace. There is no pig iron added so as to be in close proximity to the briquettes. Grandin does not teach the utility of a method utilizing briquettes consisting of iron oxide, a reductant, a cellulose fiber, and 0% to 5% added water to make metallized iron, wherein all the iron is incorporated in the briquette.

Wienert, col. 3, lines 11-13, teaches the utility of pre-drying the "coke composites" at 220° C on a traveling grate (col. 3, line 10) for approximately 10 minutes. The Applicant's claimed temperature range is 1000° to 1550° C for 6 to 20 minutes. In other words, the Applicant has formed iron in less time than Wienert has dried the coke composites. Grandin teaches that the coke composites (a.k.a. residue briquettes) must be located in close proximity to pig iron and in the presence of blown oxygen, and this limitation is not recited by Wienert. While no specific temperatures are cited by Grandin, the fact that the carbon is being combusted necessitates that the temperatures are higher than 220° C and it would be unsubstantiated to conclude that the Grandin technology could appropriately be applied by Wienert which requires low temperature drying. Applicant respectfully asserts that claim 1, as herein amended,

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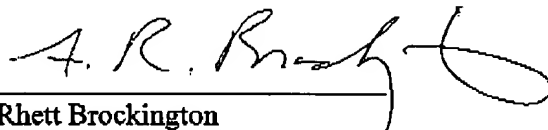
traverses the Examiner's rejections based on Wienert in view of Grandin.

Dependent claims 2, and 4-13 depend on claim 1, and contain all the limitations thereof, and respectfully also traverse the rejections.

In view of these Remarks, the Interview on March 28, 2003, and the Amendment filed on April 2, 2003, the application is now believed to be in condition for allowance and such favorable action is respectfully requested on behalf of the Applicant(s).

No new matter has been added, and no new issues have been raised.

Respectfully submitted,



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